IJOEM

Indonesian Journal of Elearning and Multimedia
https://ejournal.1001tutorial.com/index.php/ijoem

OPEN ACCESS

Analysis of Learning Media Development Needs Exe Learning Straight Motion Material Changes Regularly for Senior High School Class XI

Erma Novela

Universitas Bengkulu
Bengkulu, Indonesia
✉ ermanovela2202@gmail.com*

Article Information:
Received July 27, 2023
Revised October 21, 2023
Accepted October 25, 2023

Keywords:
E-Module; Exe Learning; Media

Abstract

The purpose of the study entitled Needs Analysis of Learning Media Development Exe Learning Straight Motion Material Changes Regularly for Senior High School Class XI is to conduct a needs analysis to find out how much students and teachers need to develop E-module learning media based on the Exe learning application on Straight Motion Changing Regular Class XI material. The method used is the qualitative descriptive method. Data collection techniques carried out in this study were carried out by observation and interview activities. The instruments used are the observation data collection technique using an observation sheet instrument and when the interview data collection technique uses an instrument, namely an interview sheet consisting of teacher interview sheets and student interview sheets. From the research conducted, it was found that the understanding of student concepts at SMA Negeri 1 Kota Bengkulu, SMA Negeri 3 Kota Bengkulu, and SMA Negeri 9 Kota Bengkulu still needs to be improved, especially in the subject of physics of Straight Motion Changing Regular material. This is due to learning media that is still not interesting. Based on the results of the needs analysis conducted for the development of E-modules for Class XI Physics Regular Changing Straight Motion material, it can be concluded that teachers and students at SMA Negeri 1 Kota Bengkulu, SMA Negeri 3 Kota Bengkulu, and SMA Negeri 9 Kota Bengkulu still need the development of E-modules to improve students' understanding of concepts.

A. Introduction

Industrial era 4.0 digital technology has advanced quickly to date and brought about developments that have a significant impact on many areas of human existence, including the field of education (Wityastuti et al., 2022).

Technology in education is used during the learning process. Technology-based learning has been very popular since the Covid-19 pandemic until now. The world's growing use of information and communication technology has increased learning activities' capacity and smoothness, making them more convenient for those who study through digital means (Ansari & Khan, 2020)

One component of educational development is the curriculum. The use of curriculum developed in educational units in accordance with the needs and challenges that exist in today's world. The curriculum must be created in accordance with the advancement of science, art, technology, and the requirements of competence to be attained as educational goals in order to satisfy the development of Indonesia's human resource civilization in accordance with the country's educational values (Puspita Sari & Setiawan, 2018).

How to Cite : Novela, E. (2023). Analysis of Learning Media Development Needs Exe Learning Straight Motion Material Changes Regularly for Senior High School Class XI. Indonesian Journal of Elearning and Multimedia (IJOEM), 2(3), 104–109. https://doi.org/10.58723/ijoem.v2i3.199
ISSN : 2830-2885
Published by : Asosiasi Profesi Multimedia Indonesia

Currently, the curriculum applied in Indonesia is the independent curriculum. The independent curriculum is a learning curriculum that refers to the approach of talents and interests. The curriculum launched by the Ministry of Education and Technology Mr. Nadiem Makarim is a form of evaluation of the improvement of the previous curriculum, namely the 2013 curriculum. The beginning of the initiation of the independent learning curriculum refers to the conditions of the Covid-19 pandemic, causing various obstacles in the learning process (Madhakomala et al., 2021).

The 2013 curriculum that has been put into place in Indonesia is anticipated to help students think critically, creatively, and be able to solve problems. In order to develop students who can think critically and take an active role in addressing a problem in the period of industrial globalization 4.0, the 2013 curriculum, which forces teachers to provide a meaningful learning experience in accordance with their respective inventiveness (Putri & Saehana, 2021).

Freedom of learning provides freedom of learning by emphasizing teacher creativity in carrying out learning innovations and student creativity in carrying out learning activities. Teachers can use information technology or digital media to support the implementation of independent learning.(Divina et al., 2022).

Based on observations and interviews at SMA Negeri 1 Kota Bengkulu, SMA Negeri 3 Kota Bengkulu, and SMA Negeri 9 Kota Bengkulu, it is known that the media used tends to be less interactive and quite boring because it still uses print media and power points. Learning media is a tool used as an intermediary to convey messages in the form of learning materials between recipients (students) and messengers (teachers) (Lange & Costley, 2020).

Ineffective use of media has an impact on interest, activeness, and motivation problems which ultimately have an impact on lack of understanding of learning (Costley & Lange, 2017). Learning physics should not just focus on memorizing formulas and facts, but also on understanding the fundamental ideas behind those notions (Thahir et al., 2020)

A person's capacity to organize knowledge into meaningful concepts is known as concept understanding. If the students are already familiar with the content, learning in class will be more enjoyable and meaningful. Students may struggle in their learning activities if they comprehend notions that are inappropriate. Students' comprehension of the concepts they have can reveal whether or not they have the potential to grasp the subject (Nurhilal et al., 2018)

One of the physics materials that still needs to be improved in understanding the concept is the matter of Straight Motion Changes Regularly. Regular Changing Straight Motion (GLBB) is one of the subjects of kinematics material. Regular Changing Straight Motion is motion whose trajectory is in the form of a straight line with its speed changing regularly and has a fixed acceleration. Regular Changing Straight Motion (GLBB) is the motion of particles on a straight-line trajectory with a fixed direction of motion that travels a distance that changes regularly every one unit of time (Prihatini et al., 2017).

As a result, the Grünwald Declaration, which was signed by a group of international specialists in 1982, urges the educational system to give learning media more attention because they are extremely helpful for learning (Mateus & Hernández, 2019).

Learning resources used by teachers to deliver material include textbooks, LKS, and modules (Rachmawati et al., 2019). Teaching materials or learning resources convey the teacher's learning messages to students to arouse their curiosity and foster students' thoughts, feelings, and interests. Learning media is a means to visualize the learning process that is often used during the teaching and learning process, one of the subjects that is often used using media is physics subjects (Rohmadi et al., 2022).

Learning media in the form of E-modules is one of the teaching tools that is pertinent to modern learning advancements (Sutopo & Setiadi, 2020). For pupils to assess their own abilities, modules include tasks, worksheets, and evaluation answer keys. Additionally, students can learn at their own pace (Yerimadesi et al., 2018).

One of the electronic learning tools is the e-module, which is built entirely and methodically for a particular learning unit and delivered electronically. E-modules are more interactive and come with educational media including audio, video, and animation to enhance the learning experience for students. E-modules are created using electronic tools like PCs or Android smartphones and are curriculum-aligned non-printed teaching materials. E-module is a stand-alone educational platform with just one instructional resource (Rahayu, 2020). E-modules must also provide clear information according to student knowledge (Budi Purnomo et al., 2023). Electronic modules as digital teaching materials must meet the feasibility

qualifications in terms of validity, application, practicality, presentation, and readability as teaching materials (Prasetya, 2021).

Exe-Learning programs are those that can be used to construct E-modules. Exe Learning is an acronym for XHTML, a program used to build web-based instructional materials that are intended to provide more flexible and interesting learning resources (Rokhima et al., 2019). Exe-Learning is a program created to enable the creation of web-based learning materials without the need for programming knowledge (Intiana et al., 2023). In the Exe Learning program, the teacher merely needs to open the Exe Learning page, then fill it with text, graphics, and videos. A table of contents that links all the pages is then created automatically (Prasetyani et al., 2019).

Research relevant to this study is the research conducted (Muzijah et al., 2020). In his journal entitled "Development of E-modules using Exe-Learning applications to train science literacy" it was found that the E-modules used were worthy of development, this can be seen by the increase in learning outcomes after using E-modules based on Exe-Learning applications.

The difference between this research and previous research is that the E-module developed by the researcher was used to measure students' understanding of concepts while the previous research was to train science literacy. This is based on the importance of understanding student concepts to make it easier for students to increase knowledge.

Based on the explanation that has been conveyed above, researchers assess that Exe-Learning-based learning media is needed with the aim that it can help facilitate the course of learning and to improve students' concept learning of Physics subjects, especially in Straight Motion Changing Regularly. Therefore, researchers will conduct a study entitled Analysis of Learning Media Development Needs Exe Learning Straight Motion Material Changes Regularly for Class XI High School.

B. Research Methods

This study employs a qualitative descriptive methodology. The descriptive approach is a way to look at a current human group, an object, circumstance, way of thinking, or event. Using data gathered in the field or at the site of the study, descriptive qualitative is utilized to create theories (Yanti, 2020).

This study used samples obtained from SMA Negeri 1 Kota Bengkulu, SMAN 3 Kota Bengkulu, and SMAN 9 Kota Bengkulu with the object being teachers and students majoring in science at the school.

The research was carried out at the beginning of the odd semester of the 2023/2024 academic year which was carried out in 3 Senior High Schools (SMA) in the city of Bengkulu, including SMA Negeri 1 Kota Bengkulu, SMA Negeri 3 Kota Bengkulu, and SMA Negeri 9 Kota Bengkulu. The study was conducted from June to July 2023.

The procedure for implementing this research starts from determining the subject of research, namely students majoring in science and physics teachers. Then researchers compiled instruments in the form of observation sheets and interview sheets for teachers and students. Researchers conducted observations of all three schools and interviews directly with teachers and students. The next step is to analyze the percentage of how much students and teachers need to Exe-Learning-based learning media.

Data collection techniques carried out in this study were carried out by observation and interview activities.

The research instruments used consisted of observation sheets and interview sheets consisting of teacher interview sheets and student interview sheets.

The limitation of this study is the lack of picture of the actual condition in schools due to the lack of respondents involved. The respondents used only a few students from all students in school.

C. Result and Discussion

Based on the results of physics teacher interviews conducted at SMAN 1 Bengkulu City, SMAN 3 Bengkulu City, and SMAN 9 Bengkulu City. The first indicator is about networks, laboratories, learning spaces, and facilities in schools. The average teacher's answer to the internet network in schools is only found in important rooms such as teacher rooms, libraries, and computer labs, besides that the internet network cannot be supported by students so that students use their own internet network or data packages. For laboratories in each school have been managed properly, there are only a few tools that are no longer suitable for use. Teachers more often use learning in the classroom, but there is also learning that is done

outside the classroom, for example in wave material where learning is carried out on the beach. When learning in the classroom, teachers have started using facilities such as projectors provided by the school.

The second indicator is the teaching materials used, learning media, learning methods, and activities at school. The average teacher's answer to the teaching materials used by the teacher is still in print, while for non-print it is still in the form of a Power Point. For learning media, teachers still use simple media, for teacher evaluation, they usually use Kahoot and also learning videos that are inserted into PowerPoint. The method used by teachers is to use lectures, discussions, questions and answers and experiments. The learning method is adjusted to the material being taught by the teacher. At the time of learning activity there are students who are already active in learning but most students are still less motivated to learn physics so that students are less active in learning.

The last indicator in this interview activity is about school policies such as communication tools and also study hours. Before the pandemic, schools did not allow students to bring communication devices such as smartphones to school, but after the pandemic, students began to allow students to bring smartphones to school to adjust learning during the Covid-19 pandemic which lasted for quite a long time. Students may bring smartphones to school with a note that students only take out smartphones when there is an order from the teacher to support learning on the day's material. As for the average study hour, students prefer physics learning in the morning and also class hours that are not too long in one meeting.

This research is supported by research conducted (Muzijah et al., 2020) in their journal entitled "Development of E-modules using the Exe-Learning application to train scientific literacy", in this research it was concluded that the presence of Exe-Learning-based E-modules is Using mobile electronic media is intended as a learning medium that can be developed, it can be seen from the increase in student learning and providing opportunities for students to learn independently about material they have not mastered.

E-module is a learning medium resulting from this research. The e-module can be used by students anytime and anywhere. E-modules are more interactive and equipped with learning media such as video, audio, and animation so that students find it easier to learn learning material because the media used is interesting and not boring so that student understanding can increase.

This study was conducted with a sample of students majoring in science in 3 schools, namely SMAN 1 Bengkulu City, SMAN 3 Bengkulu City, and SMAN 9 Bengkulu City. The limitation of data collection in this study is the limited number of respondents when collecting data so that the atmosphere in the school is less described. So, for the next researcher, it is better when taking data using sufficient respondents so that the atmosphere in the school can be well illustrated.

D. Conclusion

Based on the results of the needs analysis conducted for the development of E-modules for Class XI Physics Regular Changing Straight Motion material, it can be concluded that teachers and students at SMAN 1 Bengkulu City, SMAN 3 Bengkulu City, and SMAN 9 Bengkulu City still need the development of E-modules to improve students' understanding of concepts.

E. Acknowledgment

The researcher would like to thank all lecturers of the Physics Education study program who have given permission to the author to participate in MBKM Research activities. The researcher thanked all schools, namely SMAN 1 Kota Bengkulu, SMAN 3 Kota Bengkulu, and SMAN 9 Kota Bengkulu for their availability and permission to conduct research.

References

Ansari, J. A. N., & Khan, N. A. (2020). Exploring the role of social media in collaborative learning the new domain of learning. *Smart Learning Environments*, *7*(1), 1-16. https://doi.org/10.1186/s40561-020-00118-7

Budi Purnomo, Ratu Rahmini, & Muhammad Afrillyan Dwi Syahputra. (2023). Development of Exe Learning Based E-Module with Whatsapp Application for Online History Learning to Increase Learning Result. *Journal of Education Research and Evaluation*, *7*(1), 43–52. https://doi.org/10.23887/jere.v7i1.55445

Costley, J., & Lange, C. (2017). The Effects of Lecture Diversity on Germane Load. In *International Review of Research in Open and Distributed Learning* (Vol. 18, Issue 2). https://dx.doi.org/10.19173/irrodl.v18i2.2860

Divina, A., Kusumaningrum, S. R., Sukma, R., & Dewi, I. (2022). Analysis of Student's Response to Implementation of Merdeka Belajar Based Information Technology After Pandemic Analisis Respon Siswa dalam Implementasi Kurikulum Merdeka Belajar Basis Teknologi Informasi Setelah Pandemi. Didaktika: Jurnal Pendidikan Sekolah Dasar, 5 (2), 53-62. https://dx.doi.org/10.21831/didaktika.v5i2.54047

Intiana, S. R. H., Prihartini, A. A., Handayani, F., Mar'i, M., & Faridi, K. (2023). Independent Curriculum and the Indonesian Language Education throughout the Era of Society 5.0: A Literature Review. *AL-ISHLAH: Jurnal Pendidikan*, *15*(1), 911–921. https://doi.org/10.35445/alishlah.v15i1.3140

Lange, C., & Costley, J. (2020). Improving online video lectures: learning challenges created by media. *International Journal of Educational Technology in Higher Education*, *17*(1), 1-18. https://doi.org/10.1186/s41239-020-00190-6

Madhakomala, Layli, A., Fathiyah Nur Rizqiqa, Fransiska Desiana Putri, & Sidiq Nulhaq. (2021). Kurikulum Merdeka Dalam Perspektif Pemikiran. *Jurnal Pendidikan*, *8*(2), 162–172. https://doi.org/https://doi.org/10.36835/attalim.v8i2.819

Mateus, J. C., & Hernández, W. (2019). Design, validation, and application of a questionnaire on media education for teachers in training. *Journal of New Approaches in Educational Research*, *8*(1), 34–41. https://doi.org/10.7821/naer.2019.1.329

Muzijah, R., Wati, M., & Mahtari, S. (2020). Pengembangan E-modul Menggunakan Aplikasi Exe-Learning untuk Melatih Literasi Sains. *Jurnal Ilmiah Pendidikan Fisika*, *4*(2), 89-98. https://doi.org/10.20527/jipf.v4i2.2056

Nurhilal, P. P. D., Siahaan, P., & Chandra, D. T. (2018). A profile of students' conceptual understanding and selfefficacy of eleventh graders in vocational high schools. *Journal of Physics: Conference Series*, *1013*(1). https://doi.org/10.1088/1742-6596/1013/1/012055

Prasetya, A. (2021). Electronic Module Development with Project Based Learning in Web Programming Courses. *International Journal of Computer and Information System (IJCIS)*, *02*(03), 69-72. https://doi.org/10.1177/21582440

Prasetyani, I., Darojah, D. M., Novianti, N., & Sulisworo, D. (2019). Developing eXeLearning application through project-based learning. *Journal of Physics: Conference Series*, *1188*(1), 1-8. https://doi.org/10.1088/1742-6596/1188/1/012068

Prihatini, S., Handayani, W., & Denya Agustina, R. (2017). Identifikasi Faktor Perpindahan Terhadap Waktu Yang Berpengaruh Pada Kinemetika Gerak Lurus Beraturan (GLB) dan Gerak Lurus Berubah Beraturan (GLBB). *JoTaLP: Journal of Teaching and Learning Physics*, *2(2)*, 13–20. https://doi.org/10.15575/jtlp.v2i2.65680

Puspita Sari, A., & Setiawan, A. (2018). The Development of Internet-Based Economic Learning Media using Moodle Approach. In *International Journal of Active Learning* (Vol. 3, Issue 2). https://doi.org/10.15294/ijal.v3i2.13449

Putri, A. S., & Saehana, S. (2021). An analysis of students' conceptual understanding using STEM approach educational videos. *Journal of Physics: Conference Series*, *1760*(1), 1-16. https://doi.org/10.1088/1742-6596/1760/1/012007

Rachmawati, E., Pramesti, G., Chrisnawati, H. E., & Fitriana, L. (2019). Developing of the module based on the smash book by pop up with polyhedron's subject matter to improve students learning outcomes in mathematics. *AIP Conference Proceedings*, *2194*. https://doi.org/10.1063/1.5139826

Rahayu, I. (2020). The Development Of E-Modules Project Based Learning for Students of Computer and Basic Networks at Vocational School. In *Journal of Education Technology* (Vol. 4, Issue 2). https://doi.org/10.23887/jet.v4i4.29230

Rohmadi, M., Yuliani, H., Syar, N. I., Supriatin, A., Azizah, N., Perriy, P., & Dinawati, N. C. (2022). Pengenalan Media Pembelajaran Exe-Learning Terintegrasi Nilai Keislaman pada Pelajaran Fisika. *SIPISSANGNGI: Jurnal Pengabdian Kepada Masyarakat*, *2*(2), 103-108. https://doi.org/10.35329/sipissangngi.v2i2.2775

Rokhima, N., Harisna, B. L., Ningrum, I. E., & Sulisworo, D. (2019). The eXeLearning for social arithmetics through scientific approach. *Journal of Physics: Conference Series*, *1188*(1). https://doi.org/10.1088/1742-6596/1188/1/012056

Sutopo, & Setiadi, B. R. (2020). Metal Casting Engineering Courses Assisted by Digital Smart Modules: An Assessment of Experts and Users. *Academic Journal of Interdisciplinary Studies*, *9*(5), 56–66. https://doi.org/10.36941/ajis-2020-0085

Thahir, A., Anwar, C., Saregar, A., Choiriah, L., Susanti, F., & Pricilia, A. (2020). The Effectiveness of STEM Learning: Scientific Attitudes and Students' Conceptual Understanding. *Journal of Physics: Conference Series*, *1467*(1). https://doi.org/10.1088/1742-6596/1467/1/012008

Wityastuti, E. Z., Masrofah, S., Haqqi, T. A. F., & Salsabila, U. H. (2022). Implementasi Penggunaan Media Pembelajaran Digital di Masa Pandemi COVID-19. *Jurnal Penelitian Inovatif*, *2*(1), 39–46. https://doi.org/10.54082/jupin.39

Yanti, L. R. (2020). Analisis Kesulitan Guru Dalam Menerapkan Pembelajaran Dengan Pendekatan Saintifik di SD Negeri 30 Pekanbaru. *Primary: Jurnal Pendidikan Guru Sekolah Dasar*, *9*(1), 72-80. https://doi.org/10.33578/jpfkip.v9i1.7850

Yerimadesi, Kiram, Y., Lufri, & Festiyed. (2018). Development of guided discovery learning based module on colloidal system topic for senior high school. *Journal of Physics: Conference Series*, *1116*(4). https://doi.org/10.1088/1742-6596/1116/4/042044